

From the INTERNATIONAL BUREAU

PCT

NOTIFICATION CONCERNING
TRANSMITTAL OF COPY OF INTERNATIONAL
PRELIMINARY REPORT ON PATENTABILITY
(CHAPTER I OF THE PATENT COOPERATION
TREATY)

(PCT Rule 44bis.1(c))

To:

SHAH, Shital, A.
MacMillan Sobanski & Todd LLC
One Maritime Plaza
4th Floor
720 Water Street
Toledo, OH 43604
ETATS-UNIS D'AMERIQUE

DOCKETED
By File To

Date of mailing (*day/month/year*)
08 September 2006 (08.09.2006)

Applicant's or agent's file reference
53-24872

IMPORTANT NOTICE

International application No.
PCT/US2005/005963

International filing date (*day/month/year*)
25 February 2005 (25.02.2005)

Priority date (*day/month/year*)
27 February 2004 (27.02.2004)

Applicant
ALUMINA MICRO LLC et al

The International Bureau transmits herewith a copy of the international preliminary report on patentability (Chapter I of the Patent Cooperation Treaty)

RECEIVED

SEP 13 2006

MACMILLAN, SOBANSKI & TODD

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Authorized officer

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

| | | |
|--|--|--|
| Applicant's or agent's file reference 53-24872 | FOR FURTHER ACTION | See item 4 below |
| International application No. PCT/US2005/005963 | International filing date (<i>day/month/year</i>) 25 February 2005 (25.02.2005) | Priority date (<i>day/month/year</i>) 27 February 2004 (27.02.2004) |
| International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237 | | |
| Applicant ALUMINA MICRO LLC | | |

1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis.1(a).

2. This REPORT consists of a total of 4 sheets, including this cover sheet.

In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.

3. This report contains indications relating to the following items:

- | | | |
|-------------------------------------|--------------|---|
| <input checked="" type="checkbox"/> | Box No. I | Basis of the report |
| <input type="checkbox"/> | Box No. II | Priority |
| <input type="checkbox"/> | Box No. III | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability |
| <input type="checkbox"/> | Box No. IV | Lack of unity of invention |
| <input checked="" type="checkbox"/> | Box No. V | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/> | Box No. VI | Certain documents cited |
| <input type="checkbox"/> | Box No. VII | Certain defects in the international application |
| <input type="checkbox"/> | Box No. VIII | Certain observations on the international application |

4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).

Date of issuance of this report
30 August 2006 (30.08.2006)

Authorized officer

Dorothee Mülhausen

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PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

REC'D 24 OCT 2005

WIPO

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WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

To:
SHITA A. SHAN
MACMILLAN, SOBANSKI & TODD, LLC
ONE MARITIME PLAZA, 4TH FLOOR
720 WATER STREET
TOLEDO, OH 43604

Date of mailing
(day/month/year) **20 OCT 2005**

Applicant's or agent's file reference

53-24872

FOR FURTHER ACTION

See paragraph 2 below

International application No.

PCT/US05/05963

International filing date (day/month/year)

25 February 2005 (25.02.2005)

Priority date (day/month/year)

22 February 2004 (22.02.2004)

International Patent Classification (IPC) or both national classification and IPC

IPC(7): F16K 31/00 and US Cl.: 251/11, 25, 26, 30.01, 30.02

Applicant

ALUMINA MICRO LLC

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/ US

Mail Stop PCT, Attn: ISA/US
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Facsimile No. (703) 305-3230

Date of completion of this opinion

09 September 2005 (09.09.2005)

Authorized officer

J. Casimer Jacyna

Telephone No. 571-272-1000

Form PCT/ISA/237 (cover sheet) (April 2005)

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/US05/05963

Box No. I Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of:

- ☒ the international application in the language in which it was filed
- ☐ a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a. type of material

- ☐ a sequence listing
- ☐ table(s) related to the sequence listing

b. format of material

- ☐ on paper
- ☐ in electronic form

c. time of filing/furnishing

- ☐ contained in the international application as filed.
- ☐ filed together with the international application in electronic form.
- ☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US05/05963

Box No. V Reasoned statement under Rule 43 *bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

| | | |
|-------------------------------|-------------|-----|
| Novelty (N) | Claims 4-20 | YES |
| | Claims 1-3 | NO |
| Inventive step (IS) | Claims 4-20 | YES |
| | Claims 1-3 | NO |
| Industrial applicability (IA) | Claims 1-20 | YES |
| | Claims NONE | NO |

2. Citations and explanations:

Claims 1-3 lack novelty under PCT Article 33(2) as being anticipated by Bonne et al. Bonne discloses a microvalve including a plurality of layers 20, 58, 60, a chamber 50, a plurality of ports 62-66, a movable portion 67, 92 and a first valve 46.

Claims 4-20 meet the criteria set out in PCT Article 33(2)-(3), because the prior art does not teach or fairly suggest a microvalve with a plurality of layers, a chamber and movable portion controlling flow in a first clued circuit to move a first valve between two positions as claimed which is further provided with a second fluid circuit and reservoir.